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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/516,384

07/05/2005

Evangelos Gogolides

30869/40704

4756

4743

7590

06/03/2008

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EXAMINER

LEE, SIN J

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

06/03/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/516,384	<b>Applicant(s)</b> GOGOLIDES ET AL.	
	<b>Examiner</b> Sin J. Lee	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

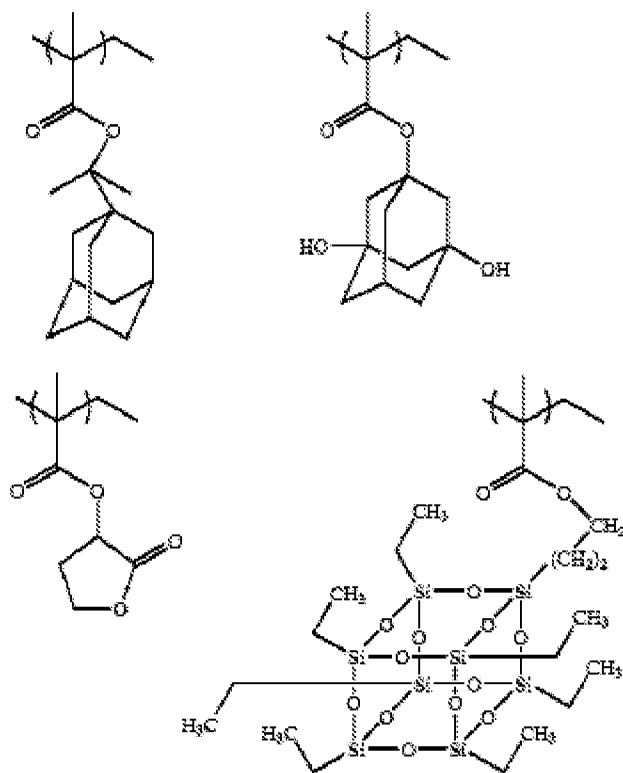
1. Due to new ground of rejection, the following rejections are made non-final.

#### ***Claim Rejections - 35 USC § 102***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-5, 9 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by De et al (US 2004/0137362 A1).

De et al (this reference has an effective filing date of October 31, 2002, on which the provisional application was filed) teaches the following polymer in his Polymer

Example 1:



In Formulation Example 1 (see [0134] and [0024]), De teaches a chemically amplified positive resist composition containing Polymer Example 1 shown above, toluenediphenylsulfonium perfluorooctanesulfonate (a photoacid generator), 1,8-diazabicyclo[5.4.0]undec-7-ene (a quencher) and propylene glycol methyl ether acetate (a solvent). In Lithographic Example #2 (see Table 2, [0163] and [0161]), De applies a solution of 193 nm TCU (thermally cured under layer) onto a silicon wafer by spin-coating and the layer is cured to form a uniform crosslinked layer. Then his photoresist composition of Formulation Example 1 is applied on top of the TCU layer, spin coated and baked to yield a resist film. The resist film is then exposed and then developed. Thus, De teaches present inventions of claims 1-5, 9 and 10.

***Claim Rejections - 35 USC § 103***

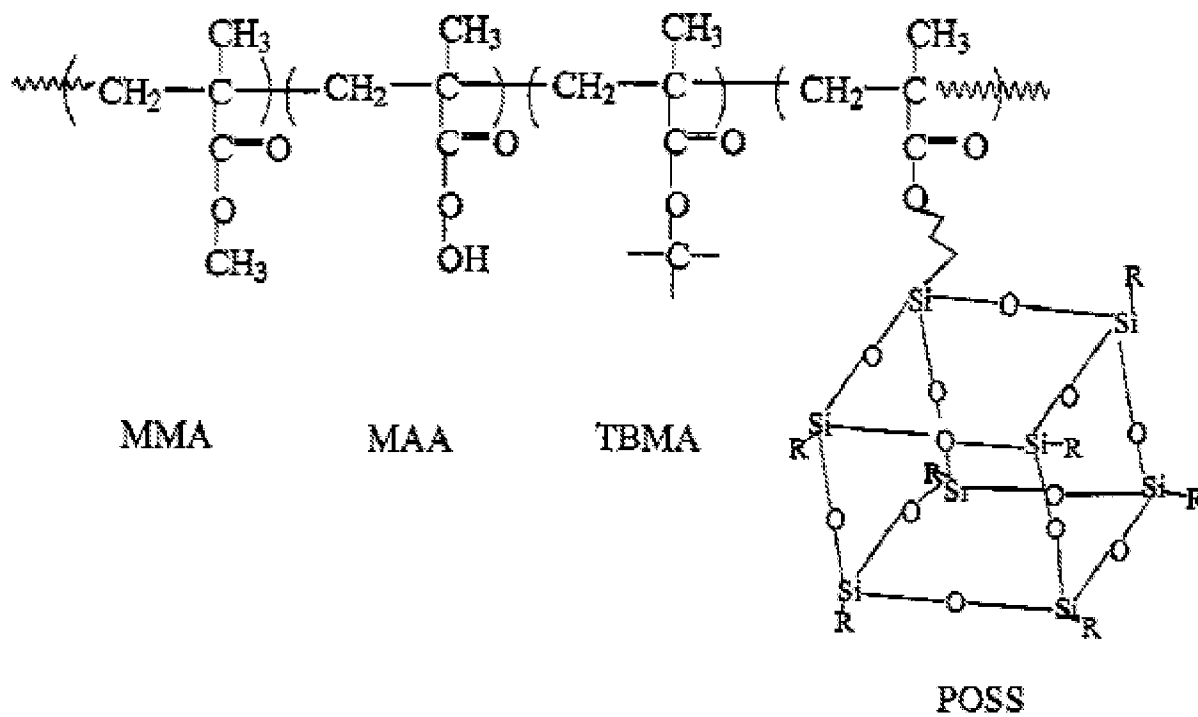
4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gonsalves (US 7,008,749 B2) in view of De et al (US 2004/0137362 A1).

Gonsalves teaches a copolymer shown below (see Fig.1):

Art Unit: 1795



Gonsalves teaches that R can be an *alkyl group*, cycloalkyl, silyl, aryl, aralkyl, alkenyl group (see col.6, lines 35-38, col.7, lines 47-55). Gonsalves does not specify which alkyl groups can be used as the "R" substituent. It is known in the art to use a methyl or ethyl group as such substituent on a POSS molecule: De teaches that an alkyl group such as methyl or ethyl group can be used as such substituent on a POSS molecule (see [0006], [0043] and [0114]). Since Gonsalves does not specify which alkyl group can be used as his R substituent, it would have been obvious to one skilled in the art to use an art-known alkyl group such as methyl or ethyl group (as taught by De) as such R substituent on Gonsalves's POSS structure with a reasonable expectation of obtaining a high resolution resist. Gonsalves uses his polymer in a chemically amplified resist for

157 nm lithography (see abstract and col.5, lines 35-40). Therefore, Gonsalves in view of De teach present inventions of claims 1-8.

### ***Response to Arguments***

6. Applicants argue that Gonsalves does not teach present substituents containing up to 3 carbon atoms or comprising ethyl groups. However, Gonsalves in view of De teach such substituents as explained above in Paragraph 5. Applicants also argue that the step of exposing to 157 nm radiation is not disclosed in Gonsalves. However, as stated above, Gonsalves clearly teaches using his polymer in a chemically amplified resist for **157 nm lithography** (col.5, lines 35-40). Applicants also argue that present claimed materials have substantial advantages of producing very smooth structures after plasma treatment and that the use of small alkyl substituents offers an additional advantage in that it lead to small absorbance values. However, applicants' such argument is moot with respect to the *102 rejection* over De. Also, with respect to the *103(a) rejection* over Gonsalves in view of De, such argument is also found to be unpersuasive because the arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). Examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration include statements regarding *unexpected results*, commercial success, solution of a long-felt need, inoperability of the prior art, invention before the date of the reference, and allegations that the author(s) of the prior art derived the disclosed subject matter from the applicant. See MPEP 716.01(c) II.

Art Unit: 1795

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sin J. Lee/  
Primary Examiner, Art Unit 1795  
May 30, 2008